



BHCTP Monthly Discharge Monitoring Report

901 S Division
Pinehurst, ID 83850
Office 208/682-9190
Fax 208/682-2737
www.ferguson-contracting.com

Month: December-16
Facility: Central Treatment Plant
Location: Bunker Hill Superfund Site
Contract Number: W912DW-13-C-0026-P00012

Total Flow For The Month From 006 Outfall: 49,509,900 gallons

Sludge pumping to CIA sludge pond: 1,221,000 gallons

Total Flow From Kellogg Tunnel: 52,063,110 gallons

Percent of Influent Successfully Treated: 100.0%

13 sample days * 6 parameters (Pb, Cd, Zn, Mn, TSS & pH) = 78 potential exceedances
78 - 0 exceedances = 78 78/78 = 100%

Results of Sampling Efforts:

All sampling has been performed in accordance with specifications and the Sampling and Analysis Plan. QC and QA samples have been taken as required. All sample analysis results may be found within this DMR.

Performance Evaluation (PE) sampling for the CTP continued, with four PE samples delivered to SVL for this reporting period. The PE samples were identified as CTPXX (random CTP sites). These samples consisted of preserved 500-ml trace metal samples to be analyzed for Cd, Pb and Zn. The PE acceptable quantitation range is listed on the 'QC' page of this DMR.

Trip blank and rinsate samples were also taken, with the results being reported on the 'PTM-004,RB,TB' page of this DMR.

Highlights of Plant Maintenance and/or Plant Optimization:

12-01-16 Performed monthly fire extinguisher inspection. All CTP fire extinguishers are fully charged and in good working condition at this time.

12-01-16 Performed monthly pump and motor inspection. All CTP pumps and motors are in good condition at this time with the exception of the Rapid Mix gear box. Gear box vibration is increasing.

12-02-16 Operators performed repairs to the city water main pressure reducer. The pressure reducer that isolates the pump room and control building failed. The city water supply pressure increased from 80 psi to 100 psi. Repair parts were purchased at the local hardware store and installed within two hours of the failure. The CTP remained in full operation with no interruptions. No damage from the increased water pressure was found.

12-07-16 CTP Lead Operator and the Process Engineer attended the monthly CTP process review meeting. Process pH of 8.3 was discussed. KT discharge pumping schedule was reviewed. Process quality, plant operations and operator work schedules were reviewed. OMER projects were reviewed. The performance evaluation samples were also reviewed.

12-08-16 Operators replaced the electrical breaker in the #2 lime slurry loop heat trace controls. The breaker failed for the third time on Friday, December 9th. The electrician will need to perform troubleshooting and repairs.

12-13-16 Performed the monthly no-load emergency generator run test and diagnostics. The emergency generator was operated for 30 minutes with no issues or errors to report.

12-16-16 08:00 CTP experienced a short-term power outage. All pumps and motors were restarted by the on-shift operators. The short-term power outage did not activate the emergency generator. All pumps, motors and process monitoring components were inspected by the on-shift operators after being restarted. All CTP components were found in good working condition.

12-27-16 Operators performed the monthly full-load emergency generator run test. The emergency generator operated

all CTP components for one hour as programmed with no issues or errors to report.

12-29-16 Performed the quarterly Direct Feed Line cleaning event (pigging). A complete report was submitted along with the CTP daily report on December 29, 2016. Pigging was completed with no issues to report. The AMD main line will be cleaned during the month of January, weather permitting.

12-29-16 Operators replaced the Rapid Mix Tank motor to gear box connection coupler. The rubber coupler replacement frequency has increased from approximately every two months to every six weeks. Gear box vibration was reduced but not eliminated with the coupler change performed today.

During this reporting period:

- The Kellogg Tunnel discharge flow increased by 1% from December 2015, from 51.5 mg to 52.0 mg.
- The Kellogg Tunnel zinc concentration decreased by 9% from December 2015, from an average of 55 mg/L to 50 mg/L.
- The CTP operating pH set point was increased to 8.5 from 8.3 during extended KT low-flow periods.
- The flocculent dosage remained at approximately 2 ppm to reduce process turbidity.
- The CTP sludge recycle rate remained at 400 gpm.
- CTP operators received no off-shift auto dialer call-out alarms.
- CTP operators performed no pumping events from the Lined Storage Pond.
- CTP operators verified Aeration Basin pH probe and grab sample values twice per day.
- CTP operators observed no Kellogg Tunnel mine or mill operations.
- CTP operators performed daily inspections of the lime slurry holding tank with no leaks or increased corrosion found this month.

Lessons Learned

No significant lessons to report for last month.

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
2016	12	1	2016	12	31

PARAMETER		Quantity or Loading			Quality or Concentration				FREQUENCY OF ANALYSIS	SAMPLE TYPE
		MONTHLY AVERAGE	DAILY MAXIMUM	UNITS	MINIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	UNITS		
pH	Sample Measurement				6.70		7.02		Continuous	Meter
	Permit Required				6.0		10.0			
Flow Thru Treatment Plant	Sample Measurement	1.60	2.05	mgd						
	Permit Required		Daily							
Lead Total - Pb Effluent	Sample Measurement	0.05	0.06	lbs/day		0.004	0.004	mg/L	three samples/ week	Comp 24
	Permit Required	14.8	37.0			0.30	0.60	mg/L		
Zinc Total - Zn Effluent	Sample Measurement	1.55	2.71	lbs/day		0.12	0.16	mg/L	three samples/ week	Comp 24
	Permit Required	36.2	91.3			0.73	1.48	mg/L		
Cadmium - Cd Effluent	Sample Measurement	0.03	0.103	lbs/day		0.002	0.006	mg/L	three samples/ week	Comp 24
	Permit Required	2.40	6.10			0.050	0.100	mg/L		
Manganese - Mn Effluent	Sample Measurement	167	307	lbs/day		12.4	18.8	mg/L	three samples/ week	Comp 24
	No Permit Required					N/A	N/A	mg/L		
Total Suspended Solids - TSS	Sample Measurement	12.2	23	lbs/day		0.9	1.4	mg/L	three samples/ week	Comp 24
	Permit Required	985	1907			20	30	mg/L		

PREPARED BY: GARY FULTON

REVIEWED BY: Mark Reinsel, Ph.D., P.E.

NPDES DISCHARGE POINT 006
CENTRAL TREATMENT PLANT
MONTH: Nov-16

DAY	LEAD (Pb)		ZINC (Zn)		CADMIUM (Cd)		MANGANESE (Mn)		pH	FLOW	TSS		LOADING
	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day			mgd	mg/L	lbs/day
1		0.059		2.11		0.04		307		1.96		13.1	5.93
2	0.004	0.032	0.129	1.16	0.003	0.02	18.8	169	6.91	1.08	0.8	7.21	3.27
3		0.025		0.89		0.02		130		0.83		5.54	2.51
4		0.050		1.78		0.03		259		1.65		11.0	5.00
5	0.004	0.058	0.102	1.65	0.002	0.03	7.71	124	7.02	1.94	1.4	22.6	10.3
6		0.059		1.69		0.03		127		1.98		23.1	10.5
7	0.004	0.055	0.113	1.74	0.002	0.03	12.4	190	6.76	1.84	1.2	18.4	8.36
8		0.036		1.14		0.02		125		1.21		12.1	5.50
9	0.004	0.024	0.110	0.72	0.002	0.01	14.5	95	6.83	0.79	0.8	5.25	2.38
10		0.050		1.52		0.03		201		1.66		11.1	5.03
11		0.058		1.76		0.04		232		1.92		12.8	5.80
12	0.004	0.058	0.083	1.33	0.002	0.03	8.02	128	6.75	1.92	1.2	19.2	8.71
13		0.058		1.34		0.03		129		1.93		19.4	8.78
14	0.004	0.056	0.085	1.31	0.002	0.03	11.2	173	6.70	1.85	0.6	9.26	4.20
15		0.057		1.35		0.03		179		1.91		9.56	4.34
16	0.004	0.056	0.087	1.34	0.002	0.03	12.5	193	6.83	1.85	0.6	9.26	4.20
17		0.029		0.70		0.02		100		0.96		4.81	2.18
18		0.024		0.57		0.01		83		0.79		3.96	1.80
19	0.004	0.046	0.164	2.10	0.003	0.03	9.63	124	6.80	1.54	0.8	10.3	4.65
20		0.059		2.71		0.04		159		1.98		13.2	5.99
21	0.004	0.055	0.138	2.11	0.003	0.04	12.2	186	6.96	1.83	1.0	15.3	6.93
22		0.056		2.13		0.04		188		1.85		15.4	7.00
23	0.004	0.041	0.127	1.45	0.006	0.07	14.0	160	6.84	1.37	0.8	9.15	4.15
24		0.062		2.17		0.10		240		2.05		13.7	6.21
25		0.058		2.05		0.10		226		1.94		12.9	5.86
26	0.004	0.055	0.128	1.97	0.002	0.03	17.3	266	7.02	1.84	1.4	21.5	9.76
27		0.030		1.06		0.02		143		0.99		11.5	5.23
28	0.004	0.023	0.121	0.79	0.002	0.01	15.9	103	6.93	0.78	0.6	3.91	1.77
29		0.045		1.51		0.02		199		1.50		7.51	3.40
30	0.004	0.056	0.122	1.89	0.002	0.03	7.13	110	6.87	1.86	0.8	12.4	5.62
31		0.057		1.93		0.03		113		1.90		12.7	5.75
Total	0.047	1.49	1.51	48.0	0.031	1.03	161.3	5,164	89.2	49.5	12.0	377	171.1
Sample Events	13	31	13	31	13	31	13	31	13	31	13	31	31
Daily Average	0.004	0.048	0.116	1.55	0.002	0.033	12.4	167	6.86	1.60	0.92	12.2	5.52
Lab Detection Limit	0.003	0.004			0.001		0.004		0.01		0.800		

MIN 0.004 0.02 0.08 0.57 0.002 0.01 7.13 82.5 6.70 0.78 0.60 3.91 1.77
MAX 0.004 0.062 0.164 2.71 0.006 0.103 18.8 307.5 7.02 2.05 1.4 23.1 10.49

Notes:

(X mg/L) * (1 kg/10^6 mg) * (2.205 lbs/kg) * (3.785 L/gal) * (10^6 gal/Mgal) * (Y Mgal/day) = (X) * (Y) * (8.345) in lbs/day
(X lbs/day) * (1 kg/2.205 lbs) = (X) / (2.205) in kg/day

KELLOGG TUNNEL DISCHARGE

CENTRAL TREATMENT PLANT

MONTH: Dec-16

Data from SVL

DAY	LEAD (Pb)		ZINC (Zn)		CADMIUM (Cd)		MANGANESE (Mn)		pH	006 FLOW		TSS	
	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day		mgd	mg/L	lbs/day	kg/day
1	0.432	7.07	45	736	0.073	1.19	74	1,215	3.33	1.96	78	1,276	579
2		3.89		406		0.66		670		1.08		703	319
3		2.99		312		0.50		515		0.83		540	245
4		5.95		620		1.00		1,023		1.65		1,074	487
5	0.418	6.75	43	701	0.074	1.19	73	1,171	3.34	1.94	69	1,114	505
6		6.91		717		1.22		1,198		1.98		1,140	517
7		6.42		666		1.13		1,113		1.84		1,059	480
8	0.463	4.68	91	920	0.156	1.58	29	291	2.96	1.21	10	101	46
9		3.04		598		1.02		189		0.79		66	30
10		6.41		1,262		2.16		399		1.66		139	63
11		7.40		1,456		2.49		460		1.92		160	72
12	0.426	6.81	45	717	0.077	1.23	74	1,181	3.26	1.92	71	1,136	515
13		6.88		723		1.24		1,191		1.93		1,146	520
14		6.57		691		1.18		1,139		1.85		1,096	497
15	0.425	6.77	44	700	0.077	1.23	72	1,146	3.33	1.91	79	1,259	571
16		6.56		678		1.19		1,110		1.85		1,220	553
17		3.40		352		0.62		576		0.96		633	287
18		2.81		290		0.51		475		0.79		521	236
19	0.434	5.57	44	564	0.074	0.94	75	963	3.28	1.54	74	949	430
20		7.17		727		1.22		1,241		1.98		1,223	555
21		6.63		672		1.12		1,147		1.83		1,130	513
22	0.405	6.25	43	665	0.070	1.08	75	1,155	3.33	1.85	72	1,112	504
23		4.63		493		0.80		855		1.37		823	373
24		6.93		737		1.20		1,280		2.05		1,232	559
25		6.54		696		1.13		1,208		1.94		1,163	527
26	0.436	6.70	52	793	0.075	1.15	79	1,219	3.33	1.84	72	1,107	502
27		3.59		425		0.62		654		0.99		594	269
28		2.84		336		0.49		516		0.78		469	213
29	0.423	5.29	44	555	0.074	0.93	76	946	3.26	1.50	76	951	431
30		6.56		688		1.15		1,172		1.86		1,178	534
31		6.71		704		1.17		1,199		1.90		1,205	546
Total	3.86	176.72	451.30	20600	0.75	34.3	626.1	28615	29.4	49.5	601	27,516	12,479
Sample Events	9	31	9	31	9	31	9	31	9	31	9	31	31
Daily Average	0.429	5.7	50.1	665	0.083	1.11	69.6	923	3.27	1.60	67	888	403

Notes:

 $(X \text{ mg/L}) * (1 \text{ kg}/10^6 \text{ mg}) * (2.205 \text{ lbs/kg}) * (3.785 \text{ L/gal}) * (10^6 \text{ gal/Mgal}) * (Y \text{ Mgal/day}) = (X) * (Y) * (8.345) \text{ lbs/day}$ $(X \text{ lbs/day}) * (1 \text{ kg}/2.205 \text{ lbs}) = (X) / (2.205) \text{ kg/day}$

**PTM Effluent at Lined Storage Pond
CENTRAL TREATMENT PLANT**

Month: Dec-16

DATE	LEAD mg/L	ZINC mg/L	CADMUM mg/L	pH s.u.	TSS mg/L
12/08/16	0.018	11.1	1.04	7.28	0.6
12/22/16	0.016	8.6	0.84	7.48	0.4

**RINSATE AND TRIP BLANKS
CENTRAL TREATMENT PLANT**

Month: Dec-16

Rinsate and Trip Blank samples will be taken approximately every 20 QC events, or one each per month.

LOCATION Rinsate & Trip Blank	DATE	SAMPLE	LEAD mg/L	ZINC mg/L	CADMUM mg/L
KT Discharge		RB-12-05-16	<0.01	<0.004	<0.002
Trip Blank (D.I.water)		TB-12-05-16	<0.01	<0.004	<0.002

Bunker Hill Central Treatment Plant

Daily log December 2016

			AERATION BASIN						CLARIFIER						DISCHARGE 006						RECYCLE SG			LIME SLURRY			SLUDGE PUMP		POND PUMP		SLUDGE GUN TEST		LINED POND
			INFLUENT KT		a.m.		p.m.		a.m.		p.m.				a.m.		p.m.		a.m.		p.m.		a.m.		p.m.		Injection Valve					ESTIMATED	
DATE	Operators	GPM	pH	SET	pH1	grab	pH1	grab	pH2	grab	pH2	grab	TURB	TEMP	pH3	grab	pH3	grab	TURB	FLOW	SG	GPM	SG	%solid	Closed/Open	pump #	min	ON	OFF	10' Out	20' Out	Elevation (mg)	
12/1	GF,GC,SB	1368	2.98	8.3	8.3	8.3	8.4	8.4	7.9	7.9	7.9	7.9	0.98	51	7.4	7.2	7.4	7.2	0.88	1.96	1.041	400	1.065	10.1	243/25	3	60				2268.5 (0.75mg)		
12/2	GC,GF			8.5	8.5	8.5	8.5	8.5	7.9	8.0	7.9	7.9	1.10	48	7.3	7.1	7.2	7.2	0.79	1.08	1.025	400	1.068	10.5	202/10	3	15				2268.5		
12/3	GC			8.5	8.5	8.5	8.4	8.4	7.9	7.9	8.1	7.9	0.80	46	7.4	7.3	7.4	7.3	0.68	0.83	1.032	400	1.066	10.2	205/10	3	90				2268.5		
12/4	SB			8.3	8.3	8.4	8.3	8.4	7.9	8.0	8.0	7.9	0.66	45	7.4	7.1	7.4	7.2	0.58	1.65	1.037	400	1.066	10.2	244/25	3	90				2268.5		
12/5	GF,SB	1375	2.95	8.3	8.3	8.3	8.3	8.3	7.9	7.9	8.0	7.8	0.90	44	7.3	7.4	7.3	7.1	0.75	1.94	1.040	400	1.067	10.4	227/25	3	90				2268.5		
12/6	GF,SB,GC			8.3	8.3	8.3	8.3	8.3	8.0	7.9	8.0	7.9	0.86	42	7.4	7.1	7.4	7.1	0.94	1.98	1.038	400	1.067	10.4	239/25	3	60				2269.0 (1.0mg)		
12/7	GF,SB,GC			8.3	8.3	8.3	8.3	8.4	8.0	7.9	8.0	7.8	0.90	41	7.3	7.2	7.4	7.2	0.83	1.84	1.041	400	1.068	10.5	253/25	3	90				2269.0		
12/8	GF,SB,GC	624	2.67	8.5	8.5	8.3	8.5	8.5	7.9	7.8	8.0	7.8	1.14	42	7.4	7.1	7.2	7.1	0.85	1.21	1.028	400	1.067	10.4	200/10	3	10				2269.0		
12/9	GC,GF			8.5	8.5	8.5	8.4	8.4	7.9	7.7	7.9	7.7	0.60	40	7.3	7.1	7.4	7.1	0.75	0.79	1.031	400	1.068	10.5	196/10	3	60				2269.5 (1.25mg)		
12/10	GC			8.3	8.4	8.6	8.3	8.3	8.1	8.0	8.2	7.9	0.49	41	7.4	7.2	7.4	7.1	0.46	1.66	1.044	400	1.068	10.5	235/25	3	90				2269.5		
12/11	SB			8.3	8.3	8.4	8.3	8.3	8.2	7.9	8.1	8.0	0.78	44	7.4	7.1	7.4	7.2	0.62	1.92	1.038	400	1.067	10.4	234/25	3	70				2269.5		
12/12	GF,SB	1354	2.26	8.3	8.3	8.3	8.3	8.3	8.0	8.0	8.0	7.9	0.80	44	7.3	7.2	7.3	7.2	0.60	1.92	1.046	400	1.069	10.7	217/25	3	90				2269.5		
12/13	GF,SB,GC			8.3	8.4	8.3	8.3	8.3	8.1	7.8	8.0	7.8	0.72	41	7.4	7.0	7.3	7.1	0.73	1.93	1.043	400	1.068	10.5	233/25	3	90				2269.5		
12/14	GF,SB,GC			8.3	8.3	8.4	8.4	8.4	7.8	7.9	8.1	8.0	0.88	38	7.4	7.1	7.4	7.1	0.62	1.85	1.040	400	1.068	10.5	236/25	3	60				2269.5		
12/15	GF,SB,GC	1382	2.44	8.3	8.3	8.5	8.3	8.3	8.1	8.0	8.0	7.8	0.84	43	7.4	7.1	7.4	7.2	0.70	1.91	1.044	400	1.068	10.5	249/25	3	60				2269.5		
12/16	GF,GC			8.3	8.3	8.3	8.5	8.5	8.0	7.9	8.0	7.9	0.95	41	7.3	7.1	7.4	7.2	0.80	1.85	1.039	400	1.068	10.5	251/25	3	30				2269.5		
12/17	GC			8.5	8.5	8.6	8.5	8.4	7.8	7.7	7.7	7.7	0.97	38	7.4	7.0	7.4	7.0	0.89	0.96	1.033	400	1.068	10.5	193/10	3	10				2269.5		
12/18	SB			8.5	8.5	8.5	8.5	8.5	7.8	7.7	7.7	7.6	0.52	34	7.4	7.1	7.4	7.0	0.50	0.79	1.033	400	1.068	10.5	222/25	3	70				2269.5		
12/19	GF,SB	1368	2.84	8.3	8.3	8.2	8.3	8.4	7.9	7.8	7.9	7.9	0.80	37	7.3	7.2	7.2	7.1	0.75	1.54	1.045	400	1.067	10.4	277/25	3	90				2269.5		
12/20	GF,GC,SB			8.3	8.3	8.3	8.3	8.3	7.8	7.8	7.9	7.8	0.64	44	7.4	7.0	7.4	7.0	0.48	1.98	1.042	400	1.068	10.5	264/25	3	90				2269.5		
12/21	GF,GC,SB			8.3	8.4	8.4	8.3	8.3	7.7	7.8	7.9	7.9	0.85	45	7.3	7.0	7.4	7.0	0.69	1.83	1.040	400	1.068	10.5	272/25	3	60				2269.5		
12/22	GF,GC,SB	1389	3.14	8.3	8.3	8.2	8.3	8.2	7.8	7.9	7.7	7.8	0.80	44	7.3	7.1	7.2	7.1	0.75	1.85	1.042	400	1.068	10.5	265/25	3	60				2269.5		
12/23	GC,GF			8.3	8.4	8.4	8.2	8.3	7.8	7.8	7.7	7.7	0.97	44	7.3	7.1	7.4	7.1	0.80	1.37	1.039	400	1.070	10.8	252/25	3	45				2269.5		
12/24	GC			8.3	8.3	8.3	8.3	8.3	7.7	7.8	7.8	7.8</																					

CENTRAL TREATMENT PLANT**MISCELLANEOUS FLOWS**Month : **Dec-16**

Date	KT Flow Meter Reading
11/30/2016	0
12/31/2016	52,063,110
Total	52,063,110

Date	006 Flow Meter Reading
11/30/2016	0
12/31/2016	49,509,900
Total	49,509,900

Sweeny Pump Station Reading				
Date	#1 Pump	620 gpm	#2 Pump	500 gpm
11/30/2016	170.0	Hours	785.0	Hours
12/31/2016	170.0	Hours	785.0	Hours
Total Hours	0.0	Hours	0.0	Hours
Total Flow for 004/Sweeny For The Month =	0		Gallons	

PTM Discharge Flow	
Date	Flow (gpm)
12/08/16	15.0
12/22/16	12.0

Date	Lined Storage Pond Water Level			
11/30/2016	750,000	gal	Elev. =	2268.5
12/31/2016	1,500,000	gal	Elev. =	2270.0

KELLOGG TUNNEL ANNUAL DISCHARGE FLOWS 2000-2009										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Jan.	61,000,000	61,677,510	54,606,100	53,066,890	52,223,080	53,150,000	56,050,900	56,281,000	53,465,820	50,936,960
Feb.	57,600,000	45,584,000	52,840,000	46,493,470	48,306,920	49,860,000	51,188,000	50,511,300	49,282,209	48,146,111
March	60,730,000	57,740,360	50,452,060	60,162,290	59,852,720	58,073,000	56,332,830	65,443,650	54,578,130	61,712,540
April	68,680,000	54,846,000	65,583,230	63,335,350	50,715,310	53,775,350	72,039,280	66,636,500	61,690,530	63,055,350
May	97,719,900	57,501,901	76,082,410	63,335,350	53,245,000	54,181,650	72,027,000	63,203,308	86,680,760	70,233,580
June	69,800,000	55,835,590	67,299,960	59,532,434	50,451,170	51,750,000	68,385,600	57,981,410	82,622,590	64,623,180
July	63,698,850	53,652,330	64,820,120	66,252,746	56,538,980	55,255,000	64,054,000	58,282,900	66,324,500	61,535,000
Aug.	66,707,120	45,289,000	58,212,940	62,074,750	52,002,140	49,970,000	64,621,000	55,335,900	65,168,620	56,446,670
Sept.	55,797,530	50,276,020	60,140,460	43,789,000	49,208,020	49,987,000	54,515,270	50,471,870	61,074,020	57,006,430
Oct.	60,424,720	50,660,840	54,485,871	52,869,290	59,601,690	52,807,000	57,610,030	50,086,330	58,666,300	55,830,000
Nov.	53,408,660	50,660,840	51,072,259	47,600,000	51,948,000	50,722,600	55,191,700	50,779,040	52,041,780	54,956,800
Dec.	56,414,870	53,464,780	56,034,000	56,413,080	56,770,000	54,904,400	60,486,900	53,716,210	55,727,260	54,542,700
Totals	771,981,650	637,189,171	711,629,410	674,924,650	640,863,030	634,436,000	732,502,510	678,729,418	747,322,519	699,025,321

KELLOGG TUNNEL ANNUAL DISCHARGE FLOWS 2010-2019										
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Jan.	55,503,180	61,797,170	58,434,610	61,855,400	57,478,450	58,440,540	52,196,730			
Feb.	50,819,910	54,556,227	57,763,170	59,383,290	54,607,950	59,767,470	53,694,400			
March	54,691,420	61,373,630	67,236,650	66,264,780	65,396,350	64,468,230	63,967,920			
April	56,255,340	65,687,340	81,233,630	69,619,100	65,618,770	63,056,840	63,323,620			
May	58,825,640	84,365,390	86,826,340	71,496,380	80,598,590	61,898,200	58,147,240			
June	56,770,200	79,985,540	83,440,990	64,663,900	65,623,330	56,368,540	53,149,810			
July	56,727,510	79,346,330	74,315,690	62,844,790	63,425,030	55,655,000	56,521,710			
Aug.	56,239,370	70,377,570	68,986,900	58,459,380	61,486,270	55,316,100	53,293,430			
Sept.	54,109,980	60,404,280	62,270,300	58,097,500	56,279,590	53,890,000	49,796,420			
Oct.	55,480,200	62,403,480	59,991,850	58,325,780	60,659,850	52,082,800	52,417,120			
Nov.	54,856,880	58,430,700	57,184,220	56,215,000	55,065,100	49,812,540	53,815,710			
Dec.	54,607,330	58,617,700	61,750,390	56,932,530	59,770,540	51,521,900	52,063,110			
Totals	664,886,960	797,345,357	819,434,740	744,157,830	746,009,820	682,278,160	662,387,220	0	0	0

Yellow indicates record monthly flow as well as record annual flow

KELLOGG TUNNEL ZINC DATA

Month	Concentration (mg/L)											
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Jan.	86	81	79	63	70	61	72	57	68	41	46	
Feb.	86	91	96	55	72	57	95	58	68	41	68	
March	94	116	86	65	68	53	86	58	69	58	81	
April	98	121	140	85	80	50	137	176	86	107	92	
May	105	231	179	318	136	57	377	215	150	177	87	
June	107	182	118	271	143	68	347	164	106	131	78	
July	90	144	111	198	117	75	181	136	87	87	75	
Aug.	87	112	92	132	94	79	130	110	86	76	66	
Sept.	84	107	80	107	76	81	132	107	75	66	63	
Oct.	59	81	100	88	99	75	70	86	70	67	63	54
Nov.	66	79	88	88	104	63	57	95	71	70	55	44
Dec.	67	62	78	65	76	59	61	88	69	54	49	55
average	64	88	121	102	131	88	64	152	108	82	79	67
lime usage (tons/day)	2.59	3.23	2.76	4.78	3.24	2.16	4.31	3.93	2.46	2.70	1.99	
Zinc Conc. Increase/Decrease	37%	-16%	29%	-33%	-27%	138%	-29%	-24%	-4%	-15%		
Lime Usage Increase/Decrease	25%	-15%	73%	-32%	-33%	100%	-9%	-37%	10%	-26%		

2016

50
52
63
115
138
108
81
76
68
52
52
50
75

1.93

12%
-3%

Bunker Hill Superfund Site							
Kellogg, Idaho							
Central Treatment Plant Review							
Month: Dec-16							
SAMPLE	DATE	PARAMETER	VALUE	QC/dup	UNITS	PRECISION	MATRIX SPIKE DATA
LOCATION			RESULTS			% RPD	% RECOVERY
Performance	12/01/16	Cadmium	0.046	0.050	mg/L	-8.8%	
Evaluation		Lead	0.331	0.300	mg/L	9.8%	
Sample		Zinc	0.901	0.730	mg/L	21.0%	
(CTPXX-12-01-16)					mg/L		
CTPXX-12-01-16	12/01/16	Cadmium	0.046	0.046	mg/L	-0.9%	97%
		Lead	0.331	0.338	mg/L	-2.1%	97%
Lab Duplicate		Manganese	0.004	0.002	mg/L	52.3%	96%
		Zinc	0.901	0.928	mg/L	-3.0%	95%
006/CTP Outfall	12/02/16	Cadmium	0.002	0.002	mg/L	20.2%	107%
		Lead	0.004	0.004	mg/L	0.0%	101%
Lab Duplicate		Manganese	18.8	19.0	mg/L	-1.1%	83%
		Zinc	0.129	0.128	mg/L	0.8%	102%
		pH	6.91	6.91	s.u.	0.0%	
		TSS	0.8	0.8	mg/L	0.0%	
006/CTP Outfall	12/05/16	Cadmium	0.002	0.002	mg/L	-9.5%	103%
		Lead	0.004	0.004	mg/L	0.0%	97%
Lab Duplicate		Manganese	7.77	7.92	mg/L	-1.9%	
		Zinc	0.113	0.115	mg/L	-1.8%	98%
		pH	7.02	6.94	s.u.	1.1%	
		TSS	1.4	1.4	mg/L	0.0%	
Kellogg Tunnel	12/05/16	Cadmium	0.074	0.074	mg/L	-0.8%	
		Lead	0.418	0.422	mg/L	-1.0%	
QC Sample		Manganese	72.5	73.5	mg/L	-1.4%	
		Zinc	43.4	43.3	mg/L	0.2%	
		pH	3.34	3.33	s.u.	0.3%	
		TSS	69.0	69.0	mg/L	0.0%	
TB-12-05-16	12/05/16	Cadmium	0.001	0.001	mg/L	0.0%	100%
		Lead	0.004	0.004	mg/L	0.0%	102%
Lab Duplicate		Manganese	0.002	0.002	mg/L	0.0%	98%
		Zinc	0.005	0.005	mg/L	0.0%	101%
006/CTP Outfall	12/07/16	Cadmium	0.002	0.002	mg/L	-10.0%	98%
		Lead	0.004	0.004	mg/L	0.0%	92%
Lab Duplicate		Manganese	12.4	12.3	mg/L	0.8%	
		Zinc	0.102	0.101	mg/L	1.0%	94%
		pH	6.76	6.78	s.u.	-0.3%	
		TSS	1.2	1.2	mg/L	0.0%	
Performance	12/08/16	Cadmium	0.058	0.050	mg/L	15.3%	
Evaluation		Lead	0.313	0.300	mg/L	4.2%	
Sample		Zinc	0.698	0.730	mg/L	-4.5%	
(CTPXX-12-08-16)					mg/L		
CTPXX-12-08-16	12/08/16	Cadmium	0.058	0.059	mg/L	-0.9%	101%
		Lead	0.313	0.314	mg/L	-0.3%	99%
Lab Duplicate		Manganese	0.002	0.002	mg/L	0.0%	102%
		Zinc	0.698	0.701	mg/L	-0.4%	100%
006/CTP Outfall	12/09/16	Cadmium	0.002	0.002	mg/L	-13.3%	106%

SAMPLE	DATE	PARAMETER	VALUE	QC/dup	UNITS	PRECISION	MATRIX SPIKE DATA
LOCATION			RESULTS			% RPD	% RECOVERY
Lab Duplicate		Lead	0.004	0.004	mg/L	0.0%	99%
		Manganese	14.5	14.7	mg/L	-1.4%	113%
		Zinc	0.110	0.113	mg/L	-2.7%	102%
		pH	6.83	6.84	s.u.	-0.1%	
		TSS	0.8	0.8	mg/L	0.0%	
Kellogg Tunnel	12/12/16	Cadmium	0.077	0.076	mg/L	1.2%	104%
		Lead	0.426	0.425	mg/L	0.2%	97%
Lab Duplicate		Manganese	73.8	72.7	mg/L	1.5%	
		Zinc	44.8	44.6	mg/L	0.4%	
		Cadmium	0.002	0.002	mg/L	6.5%	105%
		Lead	0.004	0.004	mg/L	0.0%	97%
		Manganese	8.02	8.17	mg/L	-1.9%	107%
006/CTP Outfall	12/12/16	Zinc	0.083	0.083	mg/L	0.0%	97%
		pH	6.75	6.64	s.u.	1.6%	
		TSS	1.2	1.6	mg/L	-22.2%	
		Cadmium	0.002	0.002	mg/L	6.1%	102%
		Lead	0.004	0.004	mg/L	0.0%	96%
Lab Duplicate		Manganese	11.2	11.2	mg/L	0.0%	93%
		Zinc	0.085	0.083	mg/L	2.4%	96%
		pH	6.70	6.70	s.u.	0.0%	
		TSS	0.6	0.6	mg/L	0.0%	
		Cadmium	0.057	0.050	mg/L	12.9%	
Performance Evaluation Sample (CTPXX-12-15-16)	12/15/16	Lead	0.302	0.300	mg/L	0.7%	
		Zinc	0.662	0.730	mg/L	-9.8%	
		Cadmium	0.057	0.056	mg/L	1.8%	97%
		Lead	0.302	0.299	mg/L	1.0%	96%
		Manganese	0.002	0.002	mg/L	0.0%	99%
006/CTP Outfall	12/16/16	Zinc	0.662	0.642	mg/L	3.1%	92%
		Cadmium	0.002	0.002	mg/L	-16.2%	102%
		Lead	0.004	0.004	mg/L	0.0%	95%
		Manganese	12.5	12.3	mg/L	1.6%	
		Zinc	0.087	0.087	mg/L	0.0%	95%
Lab Duplicate		pH	6.83	7.08	s.u.	-3.6%	
		TSS	0.6	1.2	mg/L	-66.7%	
		Cadmium	0.003	0.003	mg/L	-7.7%	101%
		Lead	0.004	0.004	mg/L	0.0%	96%
		Manganese	9.63	9.70	mg/L	-0.7%	109%
006/CTP Outfall	12/19/16	Zinc	0.164	0.164	mg/L	0.0%	96%
		pH	6.80	6.75	s.u.	0.7%	
		TSS	0.8	0.8	mg/L	0.0%	
		Cadmium	0.074	0.072	mg/L	2.5%	101%
		Lead	0.434	0.427	mg/L	1.6%	94%
Lab Duplicate		Manganese	75.1	73.3	mg/L	2.4%	
		Zinc	44.0	43.5	mg/L	1.1%	
		pH	3.43	3.46	s.u.	-0.9%	
		TSS	64.0	62.0	mg/L	3.2%	
		Cadmium	0.003	0.003	mg/L	0.0%	102%
006/CTP Outfall	12/21/16	Lead	0.004	0.004	mg/L	0.0%	96%
		Manganese	12.2	11.7	mg/L	4.2%	

SAMPLE	DATE	PARAMETER	VALUE	QC/dup	UNITS	PRECISION	MATRIX SPIKE DATA
LOCATION			RESULTS			% RPD	% RECOVERY
		Zinc	0.138	0.133	mg/L	3.7%	97%
		pH	6.96	6.96	s.u.	0.0%	
		TSS	1.0	1.0	mg/L	0.0%	
PTM Discharge	12/22/16	Cadmium	0.836	0.826	mg/L	1.2%	
		Lead	0.016	0.015	mg/L	1.9%	
QC Sample		Zinc	8.58	8.47	mg/L	1.3%	
		pH	7.48	7.65	s.u.	-2.2%	
		TSS	0.4	0.2	mg/L	66.7%	
Performance Evaluation Sample (CTPXX-12-22-16)	12/22/16	Cadmium	0.054	0.050	mg/L	8.4%	
		Lead	0.305	0.300	mg/L	1.7%	
		Zinc	0.642	0.730	mg/L	-12.8%	
CTPXX-12-22-16	12/22/16	Cadmium	0.054	0.054	mg/L	0.7%	95%
		Lead	0.305	0.301	mg/L	1.3%	94%
Lab Duplicate		Manganese	0.002	0.011	mg/L	-128.9%	102%
		Zinc	0.642	0.644	mg/L	-0.3%	93%
006/CTP Outfall	12/23/16	Cadmium	0.006	0.002	mg/L	100.0%	97%
		Lead	0.004	0.004	mg/L	0.0%	92%
Lab Duplicate		Manganese	14.0	14.3	mg/L	-2.1%	105%
		Zinc	0.127	0.122	mg/L	4.0%	93%
		pH	6.84	6.75	s.u.	1.3%	
		TSS	0.8	0.8	mg/L	0.0%	
Kellogg Tunnel	12/26/16	Cadmium	0.075	0.074	mg/L	1.2%	100%
		Lead	0.436	0.432	mg/L	0.9%	92%
Lab Duplicate		Manganese	79.3	80.4	mg/L	-1.4%	
		Zinc	51.6	44.9	mg/L	13.9%	
006/CTP Outfall	12/26/16	Cadmium	0.002	0.002	mg/L	-10.0%	98%
		Lead	0.004	0.004	mg/L	0.0%	92%
Lab Duplicate		Manganese	17.3	17.7	mg/L	-2.3%	
		Zinc	0.128	0.135	mg/L	-5.3%	94%
		pH	7.02	6.96	s.u.	0.9%	
		TSS	1.4	1.4	mg/L	0.0%	
006/CTP Outfall	12/28/16	Cadmium	0.002	0.002	mg/L	-10.0%	
		Lead	0.004	0.004	mg/L	0.0%	
QC Sample		Manganese	15.9	16.0	mg/L	-0.6%	
		Zinc	0.121	0.121	mg/L	0.0%	
		pH	6.93	6.94	s.u.	-0.1%	
		TSS	0.6	0.6	mg/L	0.0%	
006/CTP Outfall	12/28/16	Cadmium	0.002	0.002	mg/L	0.0%	96%
		Lead	0.004	0.004	mg/L	0.0%	91%
Lab Duplicate		Manganese	15.9	15.8	mg/L	0.6%	
		Zinc	0.121	0.118	mg/L	2.5%	92%
		pH	6.93	6.93	s.u.	0.0%	
		TSS	0.6	0.6	mg/L	0.0%	
Performance Evaluation Sample (CTPXX-12-29-16)	12/29/17	Cadmium	0.059	0.050	mg/L	15.8%	
		Lead	0.306	0.300	mg/L	2.0%	
		Zinc	0.687	0.730	mg/L	-6.1%	
006/CTP Outfall	12/30/17	Cadmium	0.002	0.002	mg/L	-20.0%	101%
		Lead	0.004	0.004	mg/L	0.0%	94%

SAMPLE	DATE	PARAMETER	VALUE	QC/dup	UNITS	PRECISION	MATRIX SPIKE DATA				
LOCATION			RESULTS			% RPD	% RECOVERY				
Lab Duplicate		Manganese	7.1	7.3	mg/L	-2.5%	100%				
		Zinc	0.122	0.126	mg/L	-3.2%	94%				
		pH	6.87	6.94	s.u.	-1.0%					
		TSS	0.8	0.8	mg/L	0.0%					
December 2016, Completeness		Cadmium	29	Valid	Total	29					
		Lead	29	Valid	Total	29					
		Manganese	23	Valid	Total	23					
		Zinc	29	Valid	Total	29					
		pH	17	Valid	Total	17					
		TSS	17	Valid	Total	17					
Monthly Performance Evaluation											
Acceptable Quantitation Range											
Analyte		Concentration		Acceptable Quantitation Range							
			(mg/L)								
Cadmium			0.050	0.040-0.060							
Lead			0.300	0.240-0.360							
Zinc			0.730	0.584-0.876							
Note: The PE quantitation range (listed above) from our PE sample source is less than required in the contract. The contract limits (listed below) have been utilized for this evaluation.											
Note: Performance evaluation samples have been given the designation "CTPXX" for purposes of blind submission to the analytical laboratory.											
Analytical Requirements											
		Quantitation		Accuracy		Completeness					
Cadmium		≤ 0.025 mg/L		80-120%		90%					
Lead		≤ 0.15 mg/L		80-120%		90%					
Manganese		≤ 0.025 mg/L		80-120%		90%					
Zinc		≤ 0.30 mg/L		80-120%		90%					
pH		≤ 0.1 pH unit		90-110%		90%					
TSS		≤ 15 mg/L		75-125%		90%					

Bunker Hill Superfund Site						
Kellogg, Idaho						
Central Treatment Plant Review						
		Month: Dec-16				
SAMPLE	DATE	PARAMETER	SPIKE	DUPPLICATE	SPIKE	PRECISION
LOCATION			ADDED	RESULT	RESULT	% RPD
PE Sample	12/01/16	Cadmium	1.00	1.03	1.01	1.2%
MS/MSD		Lead	1.00	1.32	1.30	1.4%
CTPXX-12-01-16		Manganese	1.00	0.977	0.968	0.9%
		Zinc	1.00	1.87	1.85	1.2%
006/CTP Outfall	12/02/16	Cadmium	1.00	1.06	1.08	1.9%
MS/MSD		Lead	1.00	0.988	1.01	2.6%
		Manganese	1.00	19.5	19.7	0.7%
		Zinc	1.00	1.12	1.15	2.6%
006/CTP Outfall	12/05/16	Cadmium	1.00	1.03	1.03	0.5%
MS/MSD		Lead	1.00	0.974	0.972	0.2%
		Manganese	1.00	9.06	9.05	0.2%
		Zinc	1.00	1.09	1.10	0.8%
TB-12-05-16	12/05/16	Cadmium	1.00	0.989	1.00	1.3%
MS/MSD		Lead	1.00	0.998	1.02	2.0%
		Manganese	1.00	1.01	0.981	3.0%
		Zinc	1.00	0.994	1.02	2.3%
006/CTP Outfall	12/07/16	Cadmium	1.00	0.972	0.986	1.4%
MS/MSD		Lead	1.00	0.915	0.924	1.0%
		Manganese	1.00	13.0	13.1	0.3%
		Zinc	1.00	1.03	1.04	1.2%
PE Sample	12/08/16	Cadmium	1.00	1.07	1.07	0.5%
MS/MSD		Lead	1.00	1.30	1.31	0.3%
CTPXX-12-08-16		Manganese	1.00	1.02	1.02	0.2%
		Zinc	1.00	1.70	1.70	0.1%
006/CTP Outfall	12/09/16	Cadmium	1.00	1.07	1.07	0.3%
MS/MSD		Lead	1.00	0.995	0.993	0.2%
		Manganese	1.00	15.6	15.7	0.7%
		Zinc	1.00	1.13	1.13	0.2%
Kellogg Tunnel	12/12/16	Cadmium	1.00	1.12	1.12	0.0%
MS/MSD		Lead	1.00	1.40	1.40	0.0%
		Manganese	1.00	74.7	73.7	1.4%
		Zinc	1.00	52.5	52.7	0.5%
006/CTP Outfall	12/12/16	Cadmium	1.00	1.04	1.05	0.7%
MS/MSD		Lead	1.00	0.969	0.972	0.4%
		Manganese	1.00	9.09	9.09	0.0%
		Zinc	1.00	1.05	1.05	0.2%
006/CTP Outfall	12/14/16	Cadmium	1.00	1.02	1.02	0.5%
MS/MSD		Lead	1.00	0.954	0.958	0.4%
		Manganese	1.00	12.2	12.1	0.5%
		Zinc	1.00	1.04	1.04	0.2%
PE Sample	12/15/16	Cadmium	1.00	1.03	1.03	0.3%
MS/MSD		Lead	1.00	1.26	1.26	0.2%
CTPXX-12-15-16		Manganese	1.00	0.993	0.992	0.2%
		Zinc				Sample conc. >> spike level

		Zinc	1.00	1.59	1.58	0.8%		
006/CTP Outfall	12/16/16	Cadmium	1.00	1.03	1.03	0.5%		
MS/MSD		Lead	1.00	0.962	0.952	1.1%		
		Manganese	1.00	13.2	13.2	0.2%	Sample conc. >> spike level	
		Zinc	1.00	1.04	1.04	0.4%		
006/CTP Outfall	12/19/16	Cadmium	1.00	1.00	1.02	1.5%		
MS/MSD		Lead	1.00	0.946	0.962	1.7%		
		Manganese	1.00	10.6	10.7	1.2%	Sample conc. >> spike level	
		Zinc	1.00	1.09	1.12	2.2%		
Kellogg Tunnel	12/19/16	Cadmium	1.00	1.07	1.08	1.0%		
MS/MSD		Lead	1.00	1.36	1.37	0.9%		
		Manganese	1.00	73.5	73.3	0.3%	Sample conc. >> spike level	
		Zinc	1.00	43.0	42.9	0.3%		
006/CTP Outfall	12/21/16	Cadmium	1.00	1.03	1.02	1.6%		
MS/MSD		Lead	1.00	0.972	0.956	1.7%		
		Manganese	1.00	13.1	12.7	2.8%	Sample conc. >> spike level	
		Zinc	1.00	1.12	1.11	1.2%		
PE Sample	12/22/16	Cadmium	1.00	0.997	0.999	0.2%		
MS/MSD		Lead	1.00	1.24	1.24	0.5%		
CTPXX-12-22-16		Manganese	1.00	1.02	1.02	0.5%	Sample conc. >> spike level	
		Zinc	1.00	1.57	1.58	0.4%		
006/CTP Outfall	12/23/16	Cadmium	1.00	0.977	0.973	0.4%		
MS/MSD		Lead	1.00	0.918	0.917	0.0%		
		Manganese	1.00	14.9	15.1	1.0%	Sample conc. >> spike level	
		Zinc	1.00	1.06	1.05	0.6%		
Kellogg Tunnel	12/26/16	Cadmium	1.00	1.07	1.07	0.5%		
MS/MSD		Lead	1.00	1.36	1.36	0.2%		
		Manganese	1.00	76.6	79.3	3.5%	Sample conc. >> spike level	
		Zinc	1.00	73.6	44.7	2.6%		
006/CTP Outfall	12/26/16	Cadmium	1.00	0.961	0.985	2.4%		
MS/MSD		Lead	1.00	0.902	0.924	2.5%		
		Manganese	1.00	19.1	19.3	0.8%	Sample conc. >> spike level	
		Zinc	1.00	1.05	1.07	2.2%		
006/CTP Outfall	12/28/16	Cadmium	1.00	0.978	0.966	1.2%		
MS/MSD		Lead	1.00	0.918	0.907	1.2%		
		Manganese	1.00	17.1	17.1	0.3%	Sample conc. >> spike level	
		Zinc	1.00	1.05	1.04	0.7%		
006/CTP Outfall	12/30/17	Cadmium	1.00	1.040	1.010	2.5%		
MS/MSD		Lead	1.00	0.967	0.938	3.1%		
		Manganese	1.00	8.2	8.1	1.3%	Sample conc. >> spike level	
		Zinc	1.00	1.10	1.06	4.2%		

USACE PRIME CONTRACTOR
Monthly Record of Work-Related Injuries/Illnesses & Exposure

US Army Corps of Engineers
 Month December 2018
 Page 3 of 72

In accordance with the provisions of EM 335-1, Section 10, Program Management, Part I, Chapter 10, Accidents, Reporting and Recording, Subparagraph 10.1.2.1.2.b., you, the Prime Contractor shall provide a monthly report of all injuries and illnesses resulting from work related to the work site to include capture of any accident descriptions of the Prime Contractor and its subcontractors and the subcontractors' employees. As a minimum, there should also be listing of any injuries or illnesses resulting from work performed by the prime contractor or its subcontractors. If there is no record of any injuries or illnesses, the report should state "No injuries or illnesses reported." This report is to be submitted to the USACE Contracting Officer Representative (COR) or Contracting Officer (CO) via telephone, fax or e-mail. The COR or CO will forward the report to the USACE Project Manager (PM). The PM will forward the report to the USACE Executive Director (ED). You must complete the USACE ECR Form 5304, Report of Accidents, Investigation and Disposition of Health Problems for each month.

USACE Command

Contractor Name: Francisco Contractors, Inc.

Contract Number: WES17W4-18-A-0005

Project Title: Soil & Water Treatment Plant Butler, HI

City & State: Volcom, ID 83377

USACE Office:

Incident No.	Date Employee Started Work	Where the event occurred	Description of Injury or Illness	Booth	Date Away From Work or Recall from Work	Other Incidents	On Job Injury or Illness from week before	Off Job Injury or Illness from week before	Number of Days
1	12/01/2018	4	On the job						
2	12/02/2018	2	On the job						

No accidents reported

Exposure Hours	To Work	At Work	Off Work	Classification of Record
Month: 0.00 hours Year To Date: 0.001 hours				Name of Person Signing Record: Mrs. Brando Signature:  Date: 1/3/19

CTP Mine Water Line Open Channel Inspection Form

Note: This form should be utilized weekly during the regular channel cleanout.
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: December 01, 2016

Inspected By:

Gary Coast, Steve Brunner

Item Inspected	Condition	Comments	
Channel Sections and Joints	Good / Poor	Check for cracks	Ok
Channel Inlet Connection @ KT	Good / Poor	Check for cracks	Ok
Channel Outlet/Pipeline Inlet	Good / Poor	Check for cracks	Ok
Channel Bottom (during low flows)	Good / Poor		Ok
Bottom Joints (during low flows)	Good / Poor		Ok
Trash Rack Assembly Rail Units	Good / Poor	Check for corrosion and bolt tightness	Ok
Trash Racks	Good / Poor	Removed debris from trash racks	
Parshall Flume	Good / Poor	Check fiberglass and joint connections	Ok

General Comments:

Bunker mine has one pump operating at this time.

The Kellogg Tunnel flow at this time is 1.98 mgd (1368 gpm), pH at this time is 2.98

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

CTP Mine Water Line Open Channel Inspection Form

Note: This form should be utilized weekly during the regular channel cleanout.
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: December 8, 2016

Inspected By:

Gary Coast, Steve Brunner

Item Inspected	Condition	Comments	
Channel Sections and Joints	Good / Poor	Check for cracks	Ok
Channel Inlet Connection @ KT	Good / Poor	Check for cracks	Ok
Channel Outlet/Pipeline Inlet	Good / Poor	Check for cracks	Ok
Channel Bottom (during low flows)	Good / Poor		Ok
Bottom Joints (during low flows)	Good / Poor		Ok
Trash Rack Assembly Rail Units	Good / Poor	Check for corrosion and bolt tightness	Ok
Trash Racks	Good / Poor	Removed debris from trash racks	
Parshall Flume	Good / Poor	Check fiberglass and joint connections	Ok

General Comments:

The Kellogg Tunnel flow at this time is 0.90 mgd (580 gpm), pH at this time is 2.88.

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

Operators collected no sediment from the flume area.

CTP Mine Water Line Open Channel Inspection Form

Note: This form should be utilized weekly during the regular channel cleanout.
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: December 15, 2016

Inspected By:

Gary Coast, Steve Brunner

Item Inspected	Condition	Comments	
Channel Sections and Joints	Good / Poor	Check for cracks	Ok
Channel Inlet Connection @ KT	Good / Poor	Check for cracks	Ok
Channel Outlet/Pipeline Inlet	Good / Poor	Check for cracks	Ok
Channel Bottom (during low flows)	Good / Poor		Ok
Bottom Joints (during low flows)	Good / Poor		Ok
Trash Rack Assembly Rail Units	Good / Poor	Check for corrosion and bolt tightness	Ok
Trash Racks	Good / Poor	Removed debris from trash racks	
Parshall Flume	Good / Poor	Check fiberglass and joint connections	Ok

General Comments:

The Kellogg Tunnel flow at this time is 1.99 mgd (1382 gpm), pH at this time is 2.44.

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

Operators collected approximately 1 gallon of sediment from the flume area.

Sediment collected from the flume area was disposed of at the CIA sludge pond.

CTP Mine Water Line Open Channel Inspection Form

Note: This form should be utilized weekly during the regular channel cleanout.
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: December 22, 2016

Inspected By:

Gary Coast, Steve Brunner

Item Inspected	Condition	Comments	
Channel Sections and Joints	Good / Poor	Check for cracks	Ok
Channel Inlet Connection @ KT	Good / Poor	Check for cracks	Ok
Channel Outlet/Pipeline Inlet	Good / Poor	Check for cracks	Ok
Channel Bottom (during low flows)	Good / Poor		Ok
Bottom Joints (during low flows)	Good / Poor		Ok
Trash Rack Assembly Rail Units	Good / Poor	Check for corrosion and bolt tightness	Ok
Trash Racks	Good / Poor	Removed debris from trash racks	
Parshall Flume	Good / Poor	Check fiberglass and joint connections	Ok

General Comments:

The Kellogg Tunnel flow at this time is 2.00 mgd (1389 gpm), pH at this time is 3.14.

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

Operators collected no sediment from the flume area.

CTP Mine Water Line Open Channel Inspection Form

Note: This form should be utilized weekly during the regular channel cleanout.
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: December 29, 2016

Inspected By:

Gary Coast, Steve Brunner

Item Inspected	Condition	Comments	
Channel Sections and Joints	Good / Poor	Check for cracks	Ok
Channel Inlet Connection @ KT	Good / Poor	Check for cracks	Ok
Channel Outlet/Pipeline Inlet	Good / Poor	Check for cracks	Ok
Channel Bottom (during low flows)	Good / Poor		Ok
Bottom Joints (during low flows)	Good / Poor		Ok
Trash Rack Assembly Rail Units	Good / Poor	Check for corrosion and bolt tightness	Ok
Trash Racks	Good / Poor	Removed debris from trash racks	
Parshall Flume	Good / Poor	Check fiberglass and joint connections	Ok

General Comments:

The Kellogg Tunnel flow at this time is 1.99 mgd (1380 gpm), pH at this time is 3.14.

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

Operators collected no sediment from the flume area.



One Government Gulch - PO Box 929

Kellogg ID 83837-0529

(208) 784-1258

Fax (208) 783-0891

Ferguson Contracting
901 N. Division
Pinehurst, ID 83850

Project: BHCTP

Sampled: 01-Dec-16
Received: 02-Dec-16
Reported: 06-Dec-16 11:36

LAB #	W66L0021-01	W66L0021-02	-	-	-	-
SAMPLE ID	KT-12-01-16	CTP900-12-01-16	-	-	-	-
Reporting Limit	12/01/2016 07:30	12/01/2016 07:50	-	-	-	-

Metals (Total) (Water)

Cadmium	0.0100 mg/l	0.0729	0.0458	-	-	-
Lead	0.0500 mg/l	0.432	0.331	-	-	-
Manganese	0.0200 mg/l	74.5	-	-	-	-
Zinc	0.0200 mg/l	45.0	0.901	-	-	-

Classical Chemistry Parameters (Water)

pH	pH Units	5.33 [1]	-	-	-	-
Total Susp. Solids	mg/l	78.0	-	-	-	-

John Kern
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 02-Dec-16
		Received: 02-Dec-16
		Reported: 05-Dec-16 14:28

LAB #	W66L0020-01	-	-	-	-	-
SAMPLE ID	006-12-02-16	-	-	-	-	-
		12/02/2016 06:00	-	-	-	-
		Reporting Limit				

Metals (Total) (Water)

Cadmium	0.0100 mg/L	0.0025 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [4]	-	-	-	-
Manganese	0.0200 mg/L	18.8 [3]	-	-	-	-
Zinc	0.020 mg/L	0.129	-	-	-	-

Classical Chemistry Parameters (Water)

pH	pH Units	6.91 [1]	-	-	-	-
Total Susp. Solids	mg/L	5.0	0.8 [2]	-	-	-

Kirby Gray
Technical Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 05-Dec-16
		Received: 05-Dec-16
		Reported: 06-Dec-16 12:30

LAB #	W6L0087-01	-	-	-	-	-
SAMPLE ID	006-12-05-16	-	-	-	-	-
	12/05/2016 06:00	-	-	-	-	-
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0020 [1]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	7.77 [2]	-	-	-	-
Zinc	0.020 mg/L	0.113	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	7.02	-	-	-	-
Total Susp. Solids	mg/L	5.0	1.4	-	-	-

Kirby Gray
Technical Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Ferguson Contracting
901 N. Division
Pinehurst, ID 83850

Project: BHCTP

Sampled: 05-Dec-16

Received: 05-Dec-16

Reported: 07-Dec-16 14:47

LAB #	W6L0088-01	W6L0088-02	W6L0088-03	W6L0088-04	-	-
SAMPLE ID	KT-12-05-16	QC-12-05-16	RB-12-05-16	TB-12-05-16	-	-
Reporting Limit	12/05/2016 07:30	12/05/2016 07:30	12/05/2016 07:30	12/05/2016 07:30	-	-

Metals (Total) (Water)

Cadmium	0.0100 mg/l	0.0736	0.0742	<0.0009 [2]	<0.0009 [2]	-	-
Lead	0.0500 mg/l	0.418	0.422	<0.0036 [2]	<0.0036 [2]	-	-
Manganese	0.0200 mg/l	72.5	73.5	-	-	-	-
Zinc	0.020 mg/l	43.4	43.3	0.004 [1]	0.005 [1]	-	-

Classical Chemistry Parameters (Water)

pH	pH Units	3.54	3.35	-	-	-	-
Total Susp. Solids	mg/l	5.0	69.0	-	-	-	-

John Kern
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 07-Dec-16
		Received: 07-Dec-16
		Reported: 08-Dec-16 14:52

LAB #	W6L0152-01	-	-	-	-	-
SAMPLE ID	006-12-07-16	-	-	-	-	-
	12/07/2016 06:00	-	-	-	-	-
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0019 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [4]	-	-	-	-
Manganese	0.0200 mg/L	12.4	-	-	-	-
Zinc	0.020 mg/L	0.102	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	6.76 [1]	-	-	-	-
Total Susp. Solids	mg/L	5.0	1.2	-	-	-

John Kern
Laboratory Director



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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 08-Dec-16
		Received: 09-Dec-16
		Reported: 13-Dec-16 09:45

LAB #	W66L0204-01	W66L0204-02	W66L0204-03	-	-	-
SAMPLE ID	KT-12-08-16	PTM-12-08-16	CTPXX-12-08-16	-	-	-
Reporting Limit	12/08/2016 07:30	12/08/2016 07:30	12/08/2016 08:00	-	-	-

Metals (Total) (Water)

Cadmium	0.0100 mg/L	0.156	1.04	0.0583	-	-	-
Lead	0.0500 mg/L	0.462	0.0182 [3]	0.313	-	-	-
Manganese	0.0200 mg/L	28.8	-	-	-	-	-
Zinc	0.020 mg/L	92.1 [1]	11.1	0.698	-	-	-

Classical Chemistry Parameters (Water)

pH	pH Units	2.96 [2]	7.28 [2]	-	-	-	-
Total Susp. Solids	mg/L	5.0	10.0	0.6 [3]	-	-	-

John Kern
Laboratory Director



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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 09-Dec-16
		Received: 09-Dec-16
		Reported: 12-Dec-16 15:07

LAB #	W6L0208-01	-	-	-	-	-
SAMPLE ID	006-12-09-16	-	-	-	-	-
	12/09/2016 06:00	-	-	-	-	-
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0032 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	14.5	-	-	-	-
Zinc	0.020 mg/L	0.110	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	6.83 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.8 [2]	-	-	-	-

John Kern
Laboratory Director



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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 12-Dec-16
		Received: 12-Dec-16
		Reported: 13-Dec-16 14:53

LAB #	W6600218-01	-	-	-	-	-
SAMPLE ID	KT-12-12-16	-	-	-	-	-
	12/12/2016 07:30	-	-	-	-	-
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0767	-	-	-	-
Lead	0.0500 mg/L	0.426	-	-	-	-
Manganese	0.0200 mg/L	75.8 [3]	-	-	-	-
Zinc	0.020 mg/L	44.8 [3]	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	9.26 [2]	-	-	-	-
Total Susp. Solids	mg/L	71.0	-	-	-	-

John Kern
Laboratory Director



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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 12-Dec-16
		Received: 12-Dec-16
		Reported: 13-Dec-16 14:52

LAB #	W6L0217-01	-	-	-	-	-
SAMPLE ID	006-12-12-16	-	-	-	-	-
	12/12/2016 06:00	-	-	-	-	-
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0016 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [4]	-	-	-	-
Manganese	0.0200 mg/L	8.02	-	-	-	-
Zinc	0.020 mg/L	0.083	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	6.75 [1] [5]	-	-	-	-
Total Susp. Solids	5.0 mg/L	1.2 [3]	-	-	-	-

John Kern
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 14-Dec-16
		Received: 14-Dec-16
		Reported: 15-Dec-16 14:56

LAB #	W6L0257-01	-	-	-	-	-
SAMPLE ID	006-12-14-16	-	-	-	-	-
	12/14/2016 06:00	-	-	-	-	-
Reporting Limit						
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0017 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	11.2	-	-	-	-
Zinc	0.020 mg/L	0.085	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	6.70 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.6 [2]	-	-	-	-

John Kern
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 16-Dec-16
		Received: 16-Dec-16
		Reported: 19-Dec-16 14:00

LAB #	W660337-01	-	-	-	-	-
SAMPLE ID	006-12-16-16	-	-	-	-	-
	12/16/2016 06:00	-	-	-	-	-
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0020 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	12.5 [3]	-	-	-	-
Zinc	0.020 mg/L	0.087	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	6.83 [1] [4]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.6 [2] [4]	-	-	-	-

John Kern
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 15-Dec-16
		Received: 16-Dec-16
		Reported: 20-Dec-16 11:01

LAB #	W66LO33B-01	W66LO33B-02	-	-	-	-
SAMPLE ID	KT-12-15-16	CTP900-12-15-16	-	-	-	-
	12/15/2016 07:30	12/15/2016 07:50	-	-	-	-
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0772	0.0569	-	-	-
Lead	0.0500 mg/L	0.425	0.302	-	-	-
Manganese	0.0200 mg/L	71.9	-	-	-	-
Zinc	0.020 mg/L	43.9	0.662	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	5.33 [1]	-	-	-	-
Total Susp. Solids	mg/L	79.0	-	-	-	-

John Kern
Laboratory Director



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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 19-Dec-16
		Received: 19-Dec-16
		Reported: 20-Dec-16 14:45

LAB #	W6L0368-01	-	-	-	-	-
SAMPLE ID	006-12-19-16	-	-	-	-	-
	12/19/2016 06:00	-	-	-	-	-
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0025 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	9.63	-	-	-	-
Zinc	0.020 mg/L	0.164	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	6.80 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.8 [2]	-	-	-	-

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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 19-Dec-16
		Received: 19-Dec-16
		Reported: 21-Dec-16 11:56

LAB #	W660369-01	-	-	-	-	-
SAMPLE ID	KT-12-19-16	-	-	-	-	-
	12/19/2016 07:30	-	-	-	-	-
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0736	-	-	-	-
Lead	0.0500 mg/L	0.434	-	-	-	-
Manganese	0.0200 mg/L	75.1 [3]	-	-	-	-
Zinc	0.020 mg/L	44.0 [3]	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	5.28 [1]	-	-	-	-
Total Susp. Solids	mg/L	74.0	-	-	-	-

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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 21-Dec-16
		Received: 21-Dec-16
		Reported: 22-Dec-16 13:33

LAB #	W6LO420-01	-	-	-	-	-
SAMPLE ID	006-12-21-16	-	-	-	-	-
	12/11/2016 06:00	-	-	-	-	-
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0028 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [4]	-	-	-	-
Manganese	0.0200 mg/L	12.2 [3]	-	-	-	-
Zinc	0.020 mg/L	0.138	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	6.96 [1]	-	-	-	-
Total Susp. Solids	mg/L	5.0	1.0	-	-	-

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Laboratory Director



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Ferguson Contracting
901 N. Division
Pinehurst, ID 83850

Project: BHCTP

Sampled: 22-Dec-16

Received: 23-Dec-16

Reported: 28-Dec-16 13:43

LAB #	W6LO493-01	W6LO493-02	W6LO493-03	W6LO493-04	-	-
SAMPLE ID	KT-12-22-16	PTM-12-22-16	QC-12-22-16	CTPXX-12-22-16	-	-
Reporting Limit	12/12/2016 07:30	12/12/2016 08:00	12/12/2016 08:00	12/12/2016 07:50	-	-

Metals (Total) (Water)

Cadmium	0.0100 mg/l	0.0699	0.836	0.826	0.0544	-	-
Lead	0.0500 mg/l	0.405	0.0156 [1]	0.0153 [1]	0.305	-	-
Manganese	0.0200 mg/l	74.8	-	-	-	-	-
Zinc	0.0200 mg/l	43.1	8.58	8.47	0.642	-	-

Classical Chemistry Parameters (Water)

pH	pH Units	3.33	7.48	7.65	-	-	-
Total Susp. Solids	mg/l	72.0	0.4 [1]	0.2 [1]	-	-	-

John Kern
Laboratory Director



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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 23-Dec-16
		Received: 23-Dec-16
		Reported: 27-Dec-16 14:23

LAB #	W660492-01	-	-	-	-	-
SAMPLE ID	006-12-23-16	-	-	-	-	-
	12/13/2016 06:00	-	-	-	-	-
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0060 [1] [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	14.0	-	-	-	-
Zinc	0.020 mg/L	0.127	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	6.84	-	-	-	-
Total Susp. Solids	mg/L	5.0	0.8 [1]	-	-	-

John Kern
Laboratory Director



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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 26-Dec-16
		Received: 27-Dec-16
		Reported: 28-Dec-16 13:27

LAB #	W660511-01	-	-	-	-	-
SAMPLE ID	006-12-26-16	-	-	-	-	-
	12/16/2016 06:00	-	-	-	-	-
Reporting Limit						
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0019 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [4]	-	-	-	-
Manganese	0.0200 mg/L	17.3 [3]	-	-	-	-
Zinc	0.020 mg/L	0.128	-	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	7.02 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	1.4	-	-	-	-

John Kern
Laboratory Director



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Fax (208) 783-0891

Ferguson Contracting
901 N. Division
Pinehurst, ID 83850

Project: BHCTP

Sampled: 22-Dec-16

Received: 23-Dec-16

Reported: 28-Dec-16 13:43

LAB #	W6LO493-01	W6LO493-02	W6LO493-03	W6LO493-04	-	-
SAMPLE ID	KT-12-22-16	PTM-12-22-16	QC-12-22-16	CTPXX-12-22-16	-	-
Reporting Limit	12/12/2016 07:30	12/12/2016 08:00	12/12/2016 08:00	12/12/2016 07:50	-	-

Metals (Total) (Water)

Cadmium	0.0100 mg/l	0.0699	0.836	0.826	0.0544	-	-
Lead	0.0500 mg/l	0.405	0.0156 [1]	0.0153 [1]	0.305	-	-
Manganese	0.0200 mg/l	74.8	-	-	-	-	-
Zinc	0.0200 mg/l	43.1	8.58	8.47	0.642	-	-

Classical Chemistry Parameters (Water)

pH	pH Units	3.33	7.48	7.65	-	-	-
Total Susp. Solids	mg/l	72.0	0.4 [1]	0.2 [1]	-	-	-

John Kern
Laboratory Director



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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 28-Dec-16
		Received: 28-Dec-16
		Reported: 29-Dec-16 13:59

LAB #	W660522-01	W660522-02	-	-	-	-
SAMPLE ID	006-12-28-16	0C-12-28-16	-	-	-	-
	12/18/2016 06:00	12/18/2016 06:00	-	-	-	-
Reporting Limit						
Metals (Total) (Water)						
Cadmium	0.0100 mg/L	0.0019 [2]	0.0021 [2]	-	-	-
Lead	0.0500 mg/L	<0.0036 [4]	<0.0036 [4]	-	-	-
Manganese	0.0200 mg/L	15.9 [3]	16.0	-	-	-
Zinc	0.020 mg/L	0.121	0.121	-	-	-
Classical Chemistry Parameters (Water)						
pH	pH Units	6.93 [1]	6.94 [1]	-	-	-
Total Susp. Solids	5.0 mg/L	0.6 [2]	0.6 [2]	-	-	-

John Kern
Laboratory Director



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Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 29-Dec-16 to 30-Dec-16
		Received: 30-Dec-16
		Reported: 03-Jan-17 14:26

LAB #	W660571-01	W660571-02	W660571-03	-	-	-
SAMPLE ID	KT-12-29-16	CTP900-12-29-16	006-12-30-16	-	-	-
Reporting Limit	12/29/2016 07:30	12/29/2016 07:50	12/30/2016 06:00	-	-	-

Metals (Total) (Water)

Cadmium	0.0100 mg/L	0.0740	0.0586	0.0018 [2]	-	-	-
Lead	0.0500 mg/L	0.423	0.306	<0.0036 [3]	-	-	-
Manganese	0.0200 mg/L	75.6	-	7.13	-	-	-
Zinc	0.0200 mg/L	44.4	0.687	0.122	-	-	-

Classical Chemistry Parameters (Water)

pH	pH Units	5.26 [1]	-	6.87 [1]	-	-	-
Total Susp. Solids	mg/L	76.0	-	0.8 [2]	-	-	-

Kirby Gray
Technical Director